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Tanaidacea (Crustacea: Peracardia) of the Gulf of Mexico. VI. On the Genus *Mesotanais* Dollfus, 1897 with Descriptions of Two New Species, *M. longisetosus* and *M. vadicola*

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TANAIDACEA (CRUSTACEA: PERACARIDA) OF THE GULF OF MEXICO. VI. ON THE GENUS *MESOTANAIS* DOLLFUS, 1897 WITH DESCRIPTIONS OF TWO NEW SPECIES, *M. LONGISETOSUS* AND *M. VADICOLA*

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ABSTRACT Two new species of tanaidaceans belonging to the family Leptocheliidae were collected from the continental shelves and slopes of the eastern and Gulf coasts of the United States. Both of these species are assigned to the poorly known genus *Mesotanais* Dollfus, 1897. *Mesotanais* is unique within the Leptocheliidae because its members lack eyes. The second supposedly important generic character, uniramous uropods, reported in the original description is considered to be a misdiagnosis. The assumption of this error is supported by the rediscovery of the type-species, *Mesotanais dubius* Dollfus, 1897 (Sieg and Bird, in press). In the present study, the genus *Mesotanais* is rediagnosed and the two new species from the western Atlantic are described. *Mesotanais longisetosus* n. sp. can be distinguished from *M. vadicola* n. sp. by a variety of characters including the much longer terminal setae on antenna 1, the distinctly more elongate carpus of the cheliped, and the shape of the pars molaris of the mandible. *Mesotanais longisetosus* appears to be closely related to the type-species, *M. dubius* known from the eastern Atlantic. It is distinguished from *M. dubius* by having an elongate distal seta on the carpus and more styliform dactylus of the first peraeopod, and by the presence of two short, distal, tergal spines on the merus of peraeopods 4–6. *Mesotanais vadicola* occurred at depths of 22-865 m, while *M. longisetosus* was collected mainly from the upper continental slope at depths of 545-1386 m. Between 500 m and 900 m there is a broad area of overlap in the distribution of the two species, but with increasing depth *M. vadicola* is replaced by *M. longisetosus*.

Zusammenfassung. - Zwei neue Tanaidaceen-Arten, die zur Familie Leptocheliidae gehoren, wurden auf dem Schelf und dem Kontinentalabhang des Golfes von Mexiko und der Ostküste der Vereinigten Staaten gesammelt. Beide Arten werden dem bis jetzt nur ungenügend bekannten Genus *Mesotanais* Dollfus, 1897 zugeordnet. Innerhalb der Leptocheliidae erweist sich *Mesotanais* wegen des Fehlens von Augen als einzigartig. Das zweite wichtige Gattungsmerkmal, die in der Originaldiagnose erwähnten einästigen Uropoden, werden als Fehlinterpretation betrachtet. Diese Vermutung wird bestärkt durch das Wiederauffinden der Typus-Art, *Mesotanais dubius* Dollfus, 1879 (Sieg & Bird, in press). Die Gattung *Mesotanais* wird neu definiert und zwei neue Arten werden vom Westatlantik beschrieben.

Mesotanais longisetosus n. sp. kann von *M. vadicola* n. sp. durch eine Reihe von Merkmalen getrennt werden. Dazu gehören unter anderem die viel längeren terminalen Borsten der Antenne 1, der deutlich schlankere Carpus des Chelipedens und die Form der pars molaris der Mandibel. *Mesotanais longisetosus* scheint nahe mit der Typus-Art *M. dubius* vom Ostatlantik verwandt. Sie kann von dieser am Peraeopod 1 durch die lange distale Borste am Carpus und dem längeren Dactylus mit endsträndigem Dorn unterchieden werden. Besonders characteristisch ist das Vorhandensein nur eines kurzen tergalen Dorns am Merus der Peraeopeden 4–6.

Mesotanais vadicola kommt in der Tiefe von 22–865 m vor, während *M. longisetosus* hauptsächlich auf dem Kontinentalabhang in einer Tiefe von 545–1386 m gefunden wurde. Zwischen 500 m und 900 m gibt es in der Verbreitung beider Arten eine breite Überlappungszone, aber mit zunehmender Tiefe wird *M. vadicola* durch *M. longisetosus* ersetzt.

Introduction

Recent ecological studies have revealed a rich, diverse, and largely undescribed tanaidacean fauna on the continental shelves and slopes throughout the world (Sieg 1984, Holdich and Bird 1985). On some areas of the continental slope the Tanaidacea may occur in larger numbers than any other malacostracan group (Sieg and Heard, unpublished data). Based on examination of collections from the continental shelves and slopes off the southeastern and Gulf coasts of the United States, the total number of tanaidacean species present in these regions may exceed 250 (Heard, unpublished data). In a recent study conducted by LGL Ecological Research Associates (Gallaway et. al 1988) on the continental slope of the northern Gulf of Mexico, over 168 different tanaidacean taxa were recorded, representing the second diverse group after

polychaetes. In total number of individuals, tanaidaceans ranked forth after polychaetes, ostracods, and bivalves. The family Anarthruridae as redefined by Sieg (1986) accounted for over two-thirds of these taxa including a large number of new genera and species. Other families represented included the Apseudidae, Whiteleggiidae, Sphyrapidae, Pseudotanaidae, Neotanaidae, Typhlotanaidae, and Leptocheliidae.

This report, the sixth in a series on Tanaidacea from the Gulf of Mexico (see Ogle et al., 1982; Sieg et al. 1982, Sieg & Heard 1983, 1985, 1988) deals with the family Leptocheliidae, which we found to be represented by two undescribed species from the continental shelves and slopes of the Gulf of Mexico and adjacent regions of the northwestern Atlantic. A study of the literature and examination of additional congeneric material from the eastern Atlantic led the senior author to the conclusion that these two species from the northwestern Atlantic should be placed in the genus *Mesotanais* Dollfus, 1897, which until now had not been recorded since its original discovery. Based on these and the recently discovered specimens from the eastern Atlantic (Sieg and Bird, in press), a revised generic diagnosis for *Mesotanais* is presented here.

The following abbreviations are used in the figures: A.1 = first antenna, A.2 = second antenna, L = labrum, Md(r) = right mandible, Md(l) = left mandible, Mx. 1 = first maxilla, Mx.2 = second maxilla, La = labium (paragnaths), Mxp = maxilliped, Epi = epignath (=maxillipedal epipodite), Che = cheliped, P.1–P.6 = peraeopods 1–6, Pl.1–Pl.5 = pleopods 1–5, Plt = pleotelson, and Uro = uropod.

Mesotanais Dollfus, 1897.

Bibliography and Synonymy. – See Sieg, 1983: 497-498.

Diagnosis

Cephalothorax without eyes or visual elements. Antenna 1 in female 3-segmented, in male 7-segmented, flagellum with several groups of aesthetascs. Antenna 2 in both sexes 6-segmented. Mandibles well developed. Labium consisting of 2 lobes, outer lobe with a tiny spine-like seta. Maxilla 1 with 9 terminal spines, palpus with 2 setae. Maxillipedal coxae absent, bases not fused medially; with 2 setae near articulation of palpus. Cheliped articulated with cephalothorax by a side-piece. Peraeopod 1 more elongate and larger than other peraeopods. Carpus of peraeopods 2–3 with a tiny spine. Carpus of peraeopods 4–6 with 3 distal spines; dactylus and terminal spine fused. Pleopods of typical shape, endopodite with one inner pinnate seta and proximal with one pilose outer seta, exopodite also proximal with one pilose outer seta. Uropods biramous; exopodite 2 segmented; endopodite multisegmented (4–7).

Marsupium formed by 4 pairs of oostegites. Sexual dimorphism well developed in antenna 1, cheliped, and mouthparts which are reduced in male leaving only remnants of maxilliped (basis with 2-segmented palpus).

Type-species

Mesotanais dubius Dollfus, 1897 (by monotypy).

Gender

Masculine

Remarks

The monotypic genus *Mesotanais* was established by Dollfus (1897: 213–214) for *M. dubius* Dollfus, 1897. Its original description, based on a single damaged specimen now presumed lost (Sieg and Bird, in press), was incomplete and contradictory. The type specimen, which lacked both chelae, was collected off the Azores in 1287 m by the R/V *Hirondelle* at Station 112 between Pico and Sao-Jorge. Lang (1967) provisionally placed *Mesotanais* in the family Paratanaidae Lang, 1947, but later he (Lang 1973) tentatively placed it in the Leptocheliidae Lang, 1973. Sieg (1983) listed *Mesotanais* with the family Paratanaidae, but then reassigned it to the family Leptocheliidae when he rediagnosed that family (Sieg 1984).

Dollfus (1897) compared *Mesotanais* to *Neotanais* Beddard, 1886 (=*Allaotanais* Norman and Stebbing, 1886), *Typhlotanais* G. O. Sars, 1882 and *Tanais* Latreille, 1831 because it appeared to share characters with each of them. *Mesotanais* has five pleonites and lacks eyes as in *Typhlotanais* and *Neotanais*, and was erroneously assumed to have uniramous uropods as in *Tanais*. *Mesotanais* can be distinguished from *Neotanais* by a 3-segmented antenna 1, thus it is superficially more similar to the *Typhlotanais*. Dollfus's characterization of the genus as having uniramous uropods is probably the result of superficial examination. The two segmented exopodites of the two western Atlantic species described here and plus those of a new species and additional specimens of *M. dubius* from the eastern Atlantic (Sieg and Bird, in press) are present, but inconspicuous and thus apparently were not detected during the original description of the genus.

The absence of eyes makes *Mesotanais* unique among the other genera of the family Leptocheliidae. This condition might be related to the generally greater depth distribution of the genus; however, there is a

record for one of the new western Atlantic species, *M. vadicola*, from relatively shallow water (see distribution, page 22). In all other important taxonomic characters, e.g. uropods, antenna 1, structure of maxilliped, armament of peraeopods and pleopods, *Mesotanais* is morphologically similar to other genera within the Leptocheliidae as rediagnosed by Sieg (1984).

Within the Leptocheliidae *Mesotanais* is most closely related to *Pseudonototanais* Lang, 1973. As indicated by the position of the aesthetascs, the males of *Pseudonototanais werthi* (Vanhöffen, 1914) only have a two-segmented peduncle in antenna 1 (Sieg, 1980: Abb. 12). This is also true for *Mesotanais vadicola* sp. nov. (Figure 1). By contrast, the males of *Leptochelia* Dana, 1849 (see Sieg, 1973: Table 13; Ishimaru, 1985: Fig. 3 + 10), *Hargeria* Lang, 1973 (see Harger, 1880: Plate XIII Fig. 89), *Pseudoleptochelia* Lang, 1973 (see Sieg, 1976: Abb. 7), and *Heterotanais* G. O Sars, 1882 (see Sieg, 1973: Table 63) always have three peduncular segments. In *Mesotanais/Pseudonototanais*, as well as in Nototanaidae, the armament and the elongate shape of the first male peduncular segment clearly indicate that it actually represents the first and second segment of the otherwise typical three-segmented peduncle. Both sexes of *Mesotanais* are similar to *Pseudonototanais* in having only one spine on the second antennal segment and two setae near the maxillipedal palpus. *Heterotanais*, the only other genus having one spine on the second antennal segment, can also be distinguished by having only one seta near the maxillipedal palpus. *Leptochelia* and *Pseudoleptochelia*, the remaining two genera of the family, bear two spines on the second antennal segment and always have at least three setae close to the articulation of the palpus. The endite of maxilla 1 in *Mesotanais* bears nine terminal spine as does *Heterotanais*, while *Pseudonototanais* has ten and *Leptochelia/Pseudoleptochelia* have 11 terminal spines. Finally, for the spinule on the outer lobe of the labium of *Mesotanais* might be considered as a unique character.

All information on the male stage in *Mesotanais* is based on a damaged male, in which the distal parts of both chelae are broken off. The remains (basis, carpus) still suggest that at least in *M. vadicola* we can expect to find a cheliped-type similar in structure to those known from the *Leptochelia minuta*-group. It is quite astonishing that the huge collection available from the Gulf of Mexico (see Material Examined) did not contain a single male. In most other leptocheliid species males are quite common and are found regularly (Sieg 1984). Therefore, the absence of males in the present collections might be interpreted as a result of the temporally discontinuous sampling procedure. For more detailed information on the occurrence of males in *Mesotanais* monthly collections may be needed.

Mesotanais vadicola, sp. nov.
Figures 1-5, 6, 11

Synonymy: *Typhlotanais* sp. A. (partim). - Texas A&M University, 1978: 772.

Type-material

Atlantic: 1 female, holotype, National Museum of Natural History, USNM 232786; 1 female, paratype, USNM 232787; and 1 female, paratype, dissected in Sieg coll., off South Carolina, Sta. 1247-6 (2C), 32°50'N, 079°04'W, 22 m, 20 Nov 1977.

Other material

Atlantic coast of southeastern Florida [Ocean Dredged Material Disposal Site (ODMDS), off Miami, Florida; for station data details see Table 1]: 7 females + 2 neuter, USNM 231842, Sta. 3; 1 female, Invertebrate Zoology Collection of the Gulf Coast Research Laboratory Museum, Sta. 4; 1 female, USNM 231843, Sta. 6; 4 females + 3 neuters, USNM 231844, 3 females Sieg Coll., 1 male dissected, Sieg coll., Sta. 7; 1 female + 2 neuters, USNM 231845, Sta. 8; 3 females, USNM 231846, Sta. 9.

Gulf of Mexico [Mineral Management Service (MMS)/Northern Gulf of Mexico Continental Slope (NGOMCS) study; for station data details see Table 1].

Eastern transect, off Florida, cruise II, boxcore samples; 1 neuter, USNM 232823, Sta. E2-31, samples 2380; 1 manca-I, Sta. E3-11, sample 2388; 1 manca-I, USNM 232824, Sta. E3-21, sample 2395; cruise IV, boxcore samples; 1 manca-I, dried, USNM 232825, Sta. E1-1, sample 4401; 1 female, USNM 232804, Sta. E1-2, sample 4402; 1 neuter, USNM 232831, Sta. E1-3, sample 4403; 1 neuter, USNM 232833, Sta. E1-4 sample 4404; 1 manca-II, USNM 232813, Sta. E1A-1, sample 4407; 1 female + 1 neuter, USNM 232790, Sta. E1A-2, sample 4408; 1 neuter + 1 manca-II + 1 manca-I, USNM 232815, Sta. E1A-6, sample 4412; 2 females + 1 neuter, USNM 232812, Sta. E1B-5, sample 4417; 1 manca-II, USNM 232809, Sta. E1B-6, sample 4418; 1 manca-I, USNM 232811, Sta. E1C-1, sample 4419; 1 neuter + 1 manca-II, USNM 232814, Sta. E1C-3, sample 4421; 2 manca-II, USNM 232808, Sta. E1C-6, sample 4424; 1 manca-II, USNM 232817, Sta. E3D-2, sample 4426; 1 female + 1 manca-II, USNM 232803, Sta. E3D-3, sample 4427; 1 neuter, USNM 232820, Sta. E3D-5, sample 4429; 1 manca-I, USNM 232816, Sta. E3C-2, sample 4432; 1 manca-I, Sieg Coll., Sta. E2A-1, sample 4439; 1 female, USNM 232797, Sta. E2A-3, sample 4441; 1 female, USNM 232794, Sta. E2A-5, sample 4443; 1 female, USNM 232796, Sta. E2A-6, sample 4444; 1 female + 2 neuters, USNM 232837, Sta. E2B-1,

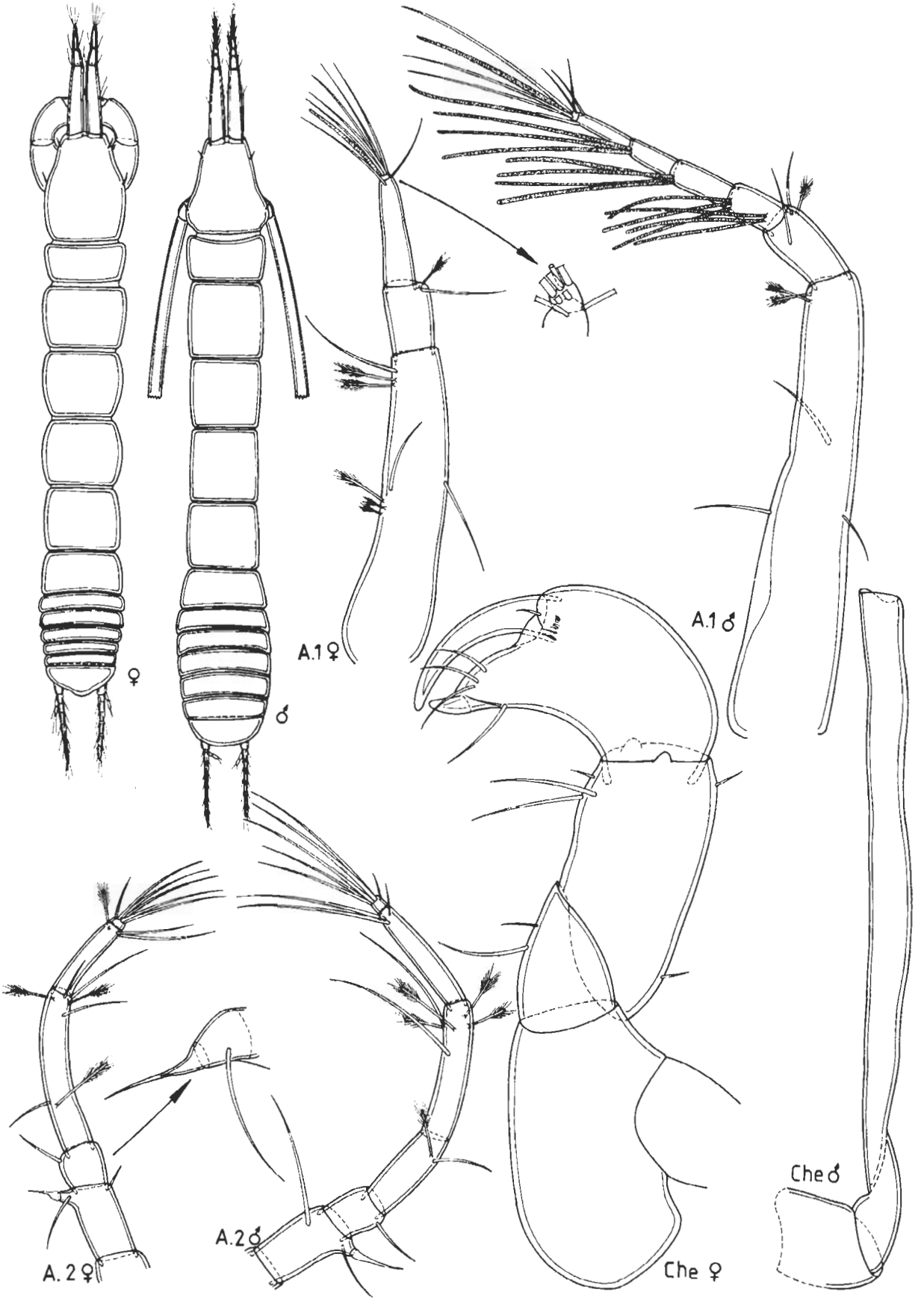

Figure 1. *Mesotanais vadicola* **sp. nov., female paratype and male allotype.**

TABLE 1

Station data for the Mineral Management Service (NMS)/Northern Gulf of Mexico Continental Slope (NGOMCS) and the Florida Ocean Dredged Material Disposal Site (ODMDS).

Station	Samples	Lat.	Long.	Depth	Date
		Northern Gulf of Mexico Continental Slope Study			
		Cruise I boxcore samples			
C3	197	27°49'12"N	090°07'12"W	845 m	27 Nov 83
	212	27°45'06"N	090°08'30"W	858 m	27 Nov 83
C4	363	27°29'06"N	089°46'24"W	1378 m	30 Nov 83
		Cruise II boxcore samples			
W2	2025/2026	27°24'54"N	093°20'30"W	605 m	07 Apr 84
	2027	27°24'54"N	093°20'24"W	605 m	07 Apr 84
	2041	27°24'54"N	093°20'30"W	603 m	07 Apr 84
W3	2067/2070	27°10'36"N	093°19'24"W	860 m	08 Apr 84
C2	2169/2176	27°54'24"N	090°06'12"W	595 m	11 Apr 84
	2197	27°54'18"N	090°05'54"W	605 m	12 Apr 84
C3	2211/2218	27°49'12"N	090°07'06"W	834 m	12 Apr 84
	2227	27°49'24"N	090°07'00"W	840 m	12 Apr 84
	2241/2248/2249	27°49'36"N	090°07'06"W	841 m	12 Apr 84
C4	2287/2295	27°28'24"N	089°46'54"W	1386 m	13 Apr 84
E2	2380	28°16'36"N	086°15'12"W	630 m	16 Apr 84
	2388/2395	28°09'36"N	086°25'00"W	845 m	17 Apr 84
		Cruise III boxcore samples			
C3	3016	27°49'37"N	090°07'05"W	885 m	13 Nov 84
		Cruise IV boxcore samples			
E1	4401-4404	28°27'29"N	086°01'34"W	353 m	14 May 85
E1A	4407/4408	28°53'20"N	086°23'33"W	351 m	14 May 85
	4412	28°53'29"N	086°23'34"W	351 m	14 May 85
E1B	4417	28°19'57"N	085°46'38"W	349 m	15 May 85
	4418	28°19'52"N	085°46'21"W	344 m	15 May 85
E1C	4419	28°12'14"N	085°31'28"W	350 m	15 May 85
	4421	28°12'00"N	085°31'31"W	353 m	15 May 85
	4424	28°12'04"N	085°31'30"W	351 m	15 May 85
E2	4451	28°16'48"N	086°14'53"W	624 m	18 May 85
	4452	28°16'47"N	086°14'46"W	622 m	18 May 85
	4453/4454	28°16'46"N	086°14'46"W	622 m	19 May 85
	4455/4456	28°16'50"N	086°14'40"W	618 m	19 May 85
E2A	4439	28°35'22"N	086°46'26"W	622 m	13 May 85
	4441	28°35'16"N	086°46'24"W	625 m	13 May 85
	4443/4444	28°35'26"N	086°44'28"W	624 m	13 May 85
E2B	4445	28°18'02"N	086°18'39"W	625 m	19 May 85
	4446	28°18'38"N	086°18'09"W	627 m	19 May 85
	4448	28°18'28"N	086°18'04"W	629 m	19 May 85
	4449/4450	28°18'42"N	086°18'10"W	627 m	19 May 85
E2C	4457/4458	28°14'50"N	086°09'47"W	618 m	16 May 85
	4459	28°14'45"N	086°09'29"W	620 m	17 May 85
	4460/4461	28°14'47"N	086°09'36"W	616 m	17 May 85
	4462	28°14'52"N	086°09'29"W	616 m	17 May 85
E2D	4463	28°07'06"N	085°53'05"W	629 m	16 May 85
	4465/4466	28°07'35"N	085°52'18"W	631 m	16 May 85

TABLE 1 (Continued)

Station data for the Mineral Management Service (NMS)/Northern Gulf of Mexico Continental Slope (NGOMCS) and the Florida Ocean Dredged Material Disposal Site (ODMDS).

Station	Samples	Lat.	Long.	Depth	Date
	4467	28°07'20"N	085°52'20"W	633 m	16 May 85
	4468	28°07'50"N	085°52'18"W	627 m	16 May 85
E2E	4470	28°02'44"N	085°40'07"W	624 m	15 May 85
	4471/4472	28°02'54"N	085°39'58"W	618 m	15 May 85
	4473	28°02'11"N	085°40'56"W	622 m	15 May 85
	4474	28°02'11"N	085°40'59"W	624 m	15 May 85
E3	4481	28°09'22"N	086°24'41"W	819 m	18 May 85
	4483/4486	28°09'25"N	086°25'05"W	819 m	18 May 85
	4484	28°09'21"N	086°24'54"W	819 m	18 May 85
E3A	4475	28°29'17"N	087°00'01"W	850 m	12 May 85
	4478	28°28'47"N	087°00'01"W	852 m	13 May 85
	4479/4480	28°28'28"N	087°00'02"W	865 m	13 May 85
E3B	4487/4488	28°07'05"N	086°19'15"W	860 m	18 May 85
	4489/4490	28°07'09"N	086°19'26"W	860 m	18 May 85
	4491	28°07'04"N	086°19'08"W	860 m	18 May 85
	4492	28°07'06"N	086°19'22"W	858 m	18 May 85
E3C	4432/4433	28°15'46"N	086°36'51"W	849 m	20 May 85
E3D	4427	28°22'11"N	086°48'13"W	845 m	20 May 85
	4429	28°22'01"N	086°47'58"W	847 m	21 May 85
		Cruise V boxcore samples			
WC1	5401	27°43'07"W	092°53'18"W	349 m	07 Jun 85
	5402	27°43'23"W	092°53'23"W	335 m	07 Jun 85
	5404	27°43'19"N	092°53'28"W	340 m	07 Jun 85
	5406	27°43'17"N	092°53'17"W	336 m	07 Jun 85
WC3	5413	27°35'34"N	092°21'42"W	750 m	08 Jun 85
	5417	27°35'35"N	092°21'42"W	750 m	08 Jun 85
	5418	27°35'37"N	092°21'46"W	750 m	08 Jun 85
WC4	5419/5420	27°43'28"N	092°08'08"W	545 m	09 Jun 85
	5423/5424	27°43'32"N	092°07'57"W	547 m	09 Jun 85
WC6	5431/5432	27°42'43"N	091°33'02"W	580 m	10 Jun 85
	5433	27°42'46"N	091°32'58"W	556 m	10 Jun 85
	5434	27°42'43"N	091°32'57"W	554 m	11 Jun 85
WC7	5442	27°45'39"N	091°13'11"W	454 m	12 Jun 85
WC8	5443/5444	27°50'30"N	090°44'07"W	545 m	13 Jun 85
	5445/5446	27°50'23"N	090°44'01"W	550 m	13 Jun 85
	5447/5448	27°50'29"N	090°44'06"W	547 m	13 Jun 85
WC9	5450	27°41'37"N	091°17'53"W	753 m	11 Jun 85
	5454	27°41'32"N	091°17'51"W	761 m	11 Jun 85
WC10	5457/5458	27°45'17"N	090°47'38"W	748 m	12 Jun 85
	5459	27°45'19"N	090°47'41"W	748 m	12 Jun 85
WC12	5471	27°19'44"N	091°33'02"W	1235 m	13 Jun 85
		Atlantic coast of Florida (ODMDS-study)			
3		25°46'00"N	080°03'22"W	196 m	Sep 85
4		25°45'15"N	080°03'22"W	183 m	Sep 85
6		25°45'00"N	080°03'46"W	183 m	Sep 85
7		25°45'00"N	080°02'58"W	235 m	Sep 85
8		25°44'00"N	080°03'22"W	190 m	Sep 85
9		25°43'00"N	080°03'22"W	175 m	Sep 85

sample 4445; 1 neuter, USNM 232795, Sta. E2B-2, sample 4446; 1 female + 1 manca-II, Sieg Coll., 1 female, USNM 232798, Sta. E2B-4, sample 4448; 2 neuters + 2 manca-I, USNM 23279, Sta. E2B-5, sample 4449; 1 neuter + 1 manca-II, USNM 232792,Sta. E2B-6, sample 4450; 1 female + 1 neuter, USNM 232789, Sta. E2-1, sample 4451; 1 female + 1 neuter + 1 manca-II, USNM 232807, Sta. E2-2, sample 4452; 1 neuter + 1 manca-I, USNM 232810, Sta. E2-3, sample 4453; 2 females, Sieg Coll., Sta. E2-4, sample 4454; 1 female, USNM 232806, Sta. E2-5, sample 4455; 1 female + 3 neuters + 2 manca-II, USNM 232805, Sta. E2-6, sample 4456; 2 females, USNM 232791, Sta. E2C-1, sample 4457; 2 neuters, USNM 232800, Sta. E2C-2, sample 4458; 1 female + 2 neuters, USNM 232793, Sta. E2C-5, sample 4461; 1 female, dried, USNM 232825, Sta. E2D-1, sample 4463; 1 neuter, dried, USNM 232834, Sta. E2D-3, sample 4465; 1 manca-I, dried, USNM 232827. Sta. E2D-5, sample 4467; 1 neuter + 1 manca-I, dried, USNM 232828, Sta. E2E-1, sample 4470; 4 neuters + 2 manca-I, USNM 232832, Sta. E2E-3, sample 4471; 1 female, USNM 232836, Sta. E2E-4, sample 4472; 1 female + 1 neuter, USNM 232830, Sta. E2E-5, sample 4473; 1 female + 2 neuters, USNM 232829, Sta. E2E-5, sample 4474; 1 neuter, USNM 232822, Sta. E3A-4, sample 4478; 1 neuter, USNM 232818, Sta. E3A-6, sample 4480; 2 manca-II, dried, USNM 232835, Sta. E3-4, sample 4484; 1 neuter, USNM 232821, Sta. E3-6, sample 4486; 1 neuter, USNM 232819, Sta. E3B-3, sample 4489.

West central transect, off Louisiana, cruise V, boxcore samples; 1 neuter, USNM 232848, Sta. WC1-1, sample 5401; 2 neuters, USNM 232845, Sta. WC1-2, sample 5402; 1 neuter + 1 manca-I, USNM 232851, Sta. WC1-4, sample 5404; 1 neuter, USNM 232850, Sta. WC1-6, sample 5406; 1 female + 1 neuter + 1 manca-II, USNM 232854, Sta. WC4-1, sample 5419; 1 neuter, USNM 232852, Sta. WC4-2, sample 5420; 1 neuter + 1 manca-II, USNM 232849, Sta. WC4-5, sample 5423; 1 female, USNM 232842, Sta. WC4-6, sample 5424; 1 neuter, USNM 232853, Sta. WC6-1, sample 5431; 1 neuter + 1 manca-I, USNM 232844, Sta. WC6-2, sample 5432; 1 female + 1 manca-I, USNM 232843, Sta. WC6-3, sample 5433; 2 manca-I, USNM 232855, Sta. WC6-4, sample 5434; 2 neuters, USNM 232846, Sta. WC7-6, sample 5442; 2 females, Sieg Coll., Sta. WC8-1, sample 5443; 2 manca-II, USNM 232847, Sta. WC8-3, sample 5445; 1 neuter, USNM 232841, Sta. WC8-4, sample 5446.

Western transect, off Texas, cruise II, boxcore samples; 1 female, USNM 232826, Sta. W2-13, sample 2025; 1 manca-II, USNM 232840, Sta. W2-12, sample 2026; 1 female, Sieg Coll., Sta. W2-21, sample 2027; 1 neuter, USNM 232788, Sta. W2-31, sample 2039; 1 neuter, USNM 232838, Sta. W2-33, sample 2041; 1 neuter, damaged, USNM 232839, Sta. W3-11, sample 2067.

Northwestern Gulf of Mexico – [Texas hardbank study; mainly as *Typhlotanais* sp. A, see Texas A&M University, 1978].

West Flower Garden Bank, 27°52'N, 093°50'W, depth 24–98 m; 1 female, Sta. I-6-1, 13 Oct. 1981, Invertebrate Zoology Collection of the Gulf Coast Research Laboratory Museum; 1 female, Sta. VI-3-1, 19 May 1982; 1 neuter, Sta. I-4-1, 13 Oct. 1980; 1 female, Sta. V-4-2, 8 Nov. 1981, Sieg Coll.

East Flower Garden Bank, 27°53'N, 093°38'W, about 100 m depth; 1 female Sta. III-5-1, 2 Apr. 1981. 1 female (damaged), Sta. III-5-4, 3 Apr. 1981; 1 female, Sta. VI-3-1, 23 May 1982.

Exact location unknown; 1 neuter, CNA Sta. I-1-3, 11 Oct. 1980; 1 female, CNA Sta. I-1-5, 11 Oct. 1980.

Type-locality

Western North Atlantic, off South Carolina, 32°50'N, 079°04'W, 22 m.

Etymology

The name indicates that this species, contrary to the type-species, *Mesotanais dubius* Dollfus, 1897, occurs in relatively shallow waters (Latin: *vadum* = shallow water and *-cola* = dweller, inhabitant).

Description of female (paratype)

Length of adult female about 4 mm, 6.6 times longer than broad (Figure 1).

Cephalothorax – Elongate, 1.3 times longer than broad; no eye-lobes and no visual elements. Slightly narrowed anteriorly, one setule at midlength and one setule close to anterior corner.

Peraeonites – Lateral margins of all peraeonites slightly convex in dorsal view, no setae. First peraeonite 2.1 times broader than long, broadest anteriorly. Second to fifth very similar, about 1.3 times broader than long, second to fourth broadest at midlength, fifth broadest in posterior third. Sixth 2.1 times broader than long, trapezoidal.

Pleon – All five pleonites of similar size, small, about six times broader than long.

Antenna 1 (Figure 1) – Probably 4-segmented. First segment elongate, 4.8 times longer than broad; inner border with 3 feathered hairs and one seta at midlength and 2 feathered hairs and one seta distally; outer border with one seta at midlength. Second segment short, only 1.4 times longer than broad, outer distal border with one feathered hair and one seta. Third nearly 3.6 times longer than broad, with 4 distal setae. Fourth (?) segment tiny, bearing one aesthetasc and 3 setae (fourth "segment" might be interpreted as a protuberance of the third).

Antenna 2 (Figure 1) – 6-segmented. First segment small, hemispherical, partly fused with cephalothorax,

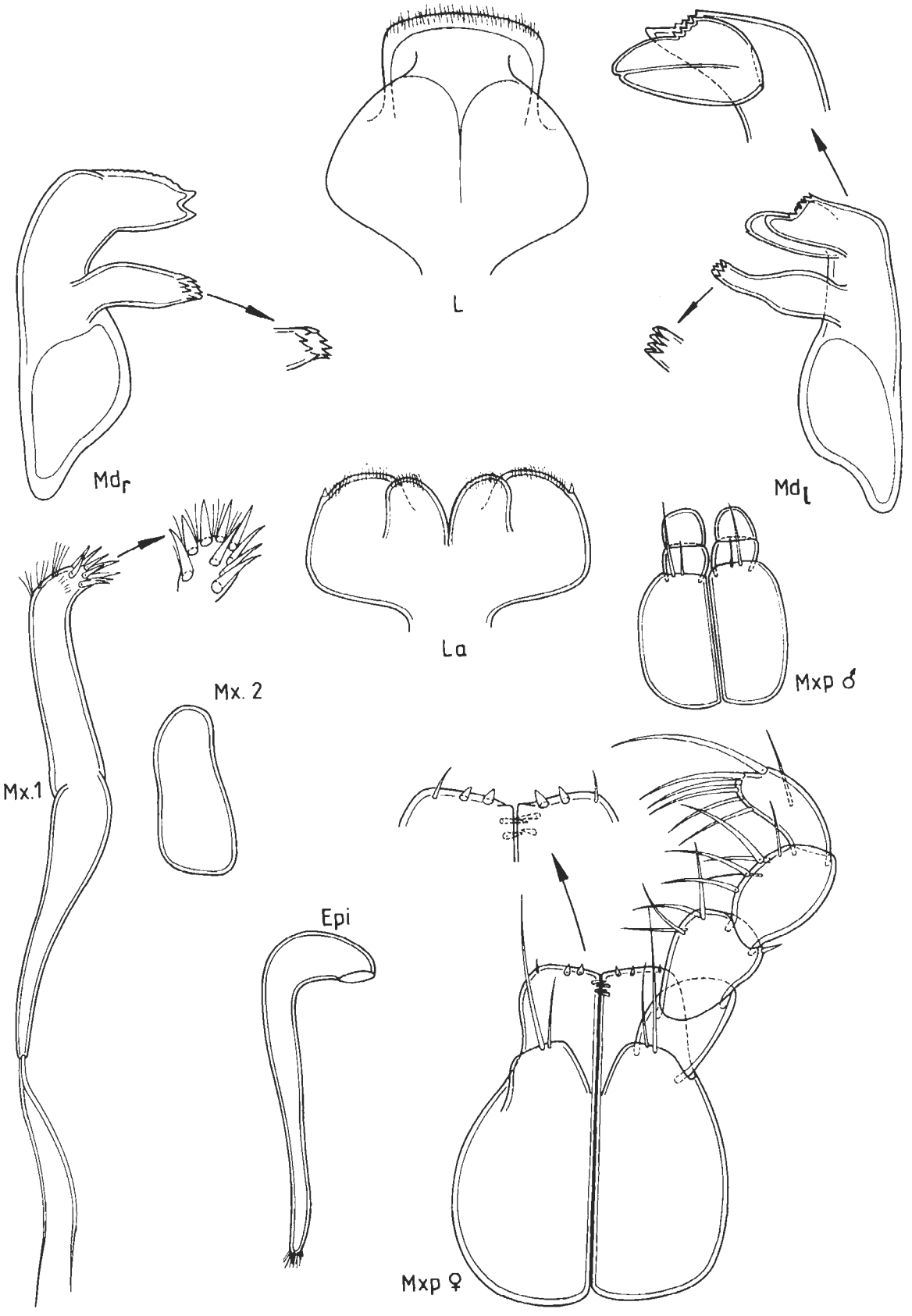

Figure 2. ***Mesotanais vadicola*** **sp. nov., female paratype and maxilliped of the male.**

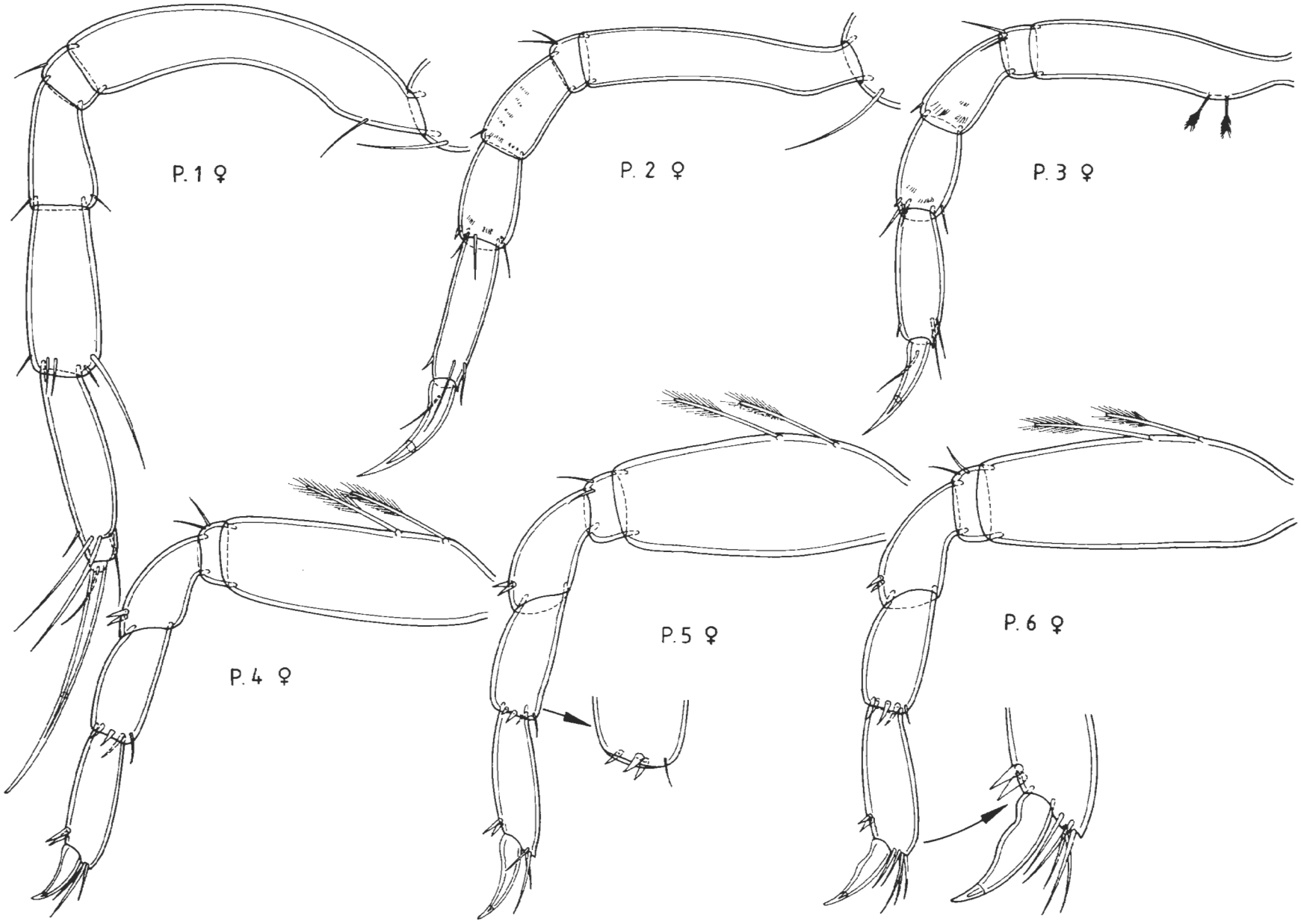

Figure 3. ***Mesotanais vadicola*** **sp. nov., female paratype.**

and unarmed. Second short, 1.6 times longer than broad, distal outer border ending in a spine-like process, one seta proximal to it; inner border with one small distal seta. Third stout, as long as broad, only outer border with one seta. Fourth elongate, slightlybent ventrally, 6.1 times longer than broad, proximal third with one feathered hair and one seta, distally with 2 feathered hairs and 3 setae. Fifth also elongate, but only 4.5 times longer than broad, with one feathered hair and 2 setae distally. Sixth very small, conical, with one short and 5 longer setae.

Labrum (Figure 2) – Hood-shaped, tip covered with fine setules.

Mandibles (Figure 2) – Well developed and of typical shape. Pars molaris reduced compared to other members of family, but still well developed; crushing area relatively small, surrounding wall covered with a circle of small teeth. Right mandible with slightly crenulate pars incisiva, lacinia mobilis fused, represented only by a tip. Pars incisiva of left mandible with one large and 4 small teeth; lacinia mobilis large, with one large slightly indented tooth and 4 small teeth.

Labium (Figure 2) – Consisting of 2 lobes; inner lobe small, tip covered with fine setules; outer lobe well developed, covered with fine setules, distal edge with a spine-like structure.

Maxilla 1 (Figure 2) – Endite bearing circle of 8 spines and with one additional spine at center, spines accompanied by several groups of small setae. Palp one-segmented as long as endite, with 2 terminal setae.

Maxilla 2 (Figure 2) – Of typical shape, pearshaped, lacking setae.

Maxilliped (Figure 2) – Well developed, without coxae. Basis unfused medially, with one long and one shorter setae near articulation of palpus; inner lobes slightly smaller than in other members of the family, unfused, distal margins each with 2 translucent spines near midline, outer edges each with a setule, 2 pairs of coupling-hooks. Palpus 4-segmented; first segment triangular, inner border shorter than outer; second with inner border longer than outer, 1 distal spine-like seta at outer border, inner border with 2 groups each with 2 setae; third segment nearly 1.6 times longer than broad, inner border with 6 setae; fourth about twice as long as broad, outer border with 1 seta, inner border with 6 distal setae.

Epignath (Figure 2) – Of typical shape; elongate, tip rounded and covered with fine setules.

Cheliped (Figure 1) – Well developed, of typical shape. Side-piece of normal size, articulating with basis behind a distal conjunction. Basis elongate, 1.9 times longer than broad. Merus small, triangular, with 1 long and 1 short midsternal seta. Carpus 3.2x as long as broad, outer border with one small proximal and one small distal seta; inner border with 1 small and 2 long distal setae. Propodus with stout fixed finger, twice as long as broad, with "comb" close to base of dactylus consisting of 2 small setae and a group of fine setules; 1 additional small seta nearby; fixed finger with 3 tergal and 2 sternal setae, tip represented by a thorn-like projection. Dactylus curved, tip only somewhat more sclerotized than rest, as long as fixed finger.

Peraeopod 1 (Figure 3) – Slender, longer than P.2 - P.3. Coxa not fused with peraeonite, with 1 seta. Basis bent sternally, 5.7 times longer than broad, proximal with 1 sternal seta. Ischium annular, with 1 tergal seta. Merus 1.6 times longer than broad, tergal and sternal border each with 1 distal seta. Carpus about 2.4 times longer than broad, tergal border with 3 distal and sternal border with 2 distal setae. Propodus 3.6 times longer than broad, tergal border with one small distal seta, sternal border with 3 long distal setae. Dactylus and terminal spine unfused, combined about 1.4 times longer than propodus, dactylus with one proximal seta.

Peraeopod 2 (Figure 3) – Shorter than P.1. Coxa not fused with peraeonite, bearing one seta. Basis nearly 4.8 times longer than broad, no setae. Ischium annular, with 2 tergal setae. Merus 1.7 times longer than broad, tergal border with one distal seta, covered with several groups of fine setules. Carpus 1.6 times longer than broad, tergal border distally with one tiny spine as well as 2 setae and sternal border distally with one seta, 2 groups of setules. Propodus 3.5 times longer than broad, tergal border with 1 tiny distal spine, sternal border with 2 distal setae. Propodus and terminal spine unfused, together shorter than propodus, dactylus with 1 seta.

Peraeopod 3 (Figure 3) – Similar to P.2, but basis and propodus somewhat shorter; basis also with 2 feathered hairs sternally.

Peraeopod 4 (Figure 3) – Stout. Coxa fused with peraeonite, no setae. Basis three times longer than broad tergal border with two proximal feathered hairs. Ischium annular, 2 tergal setae. Merus bent sternally, 1.6 times longer than broad, tergal border with one rostral and one caudal spine. Carpus twice as long as broad, distal border sternally with one spine as well as one seta and tergally with two spines. Propodus 2.6 times longer than broad, tergal border with distally one caudal and one rostral spine, sternal border with 3 distal setae. Dactylus and terminal spine fused, forming a claw.

Peraeopod 5 (Figure 3) – Similar to P.4, but basis somewhat stronger.

Peraeopod 6 (Figure 3) – Similar to P.4 and P.5, except propodus bearing 5 distal setae on sternal border.

Pleopods (Figure 5) – All 5 pairs of pleopods similar. Basis small, as long as broad, sternal border with one pinnate seta. Exopodite one-segmented, outer border covered with pinnate setae, 1 strongly developed proximal pilose seta, one strong, pilose seta separated by a gap from the pinnate setae. Endopodite one-segmented, inner border with one pinnate seta at midlength; outer border with one proximal seta sepa-

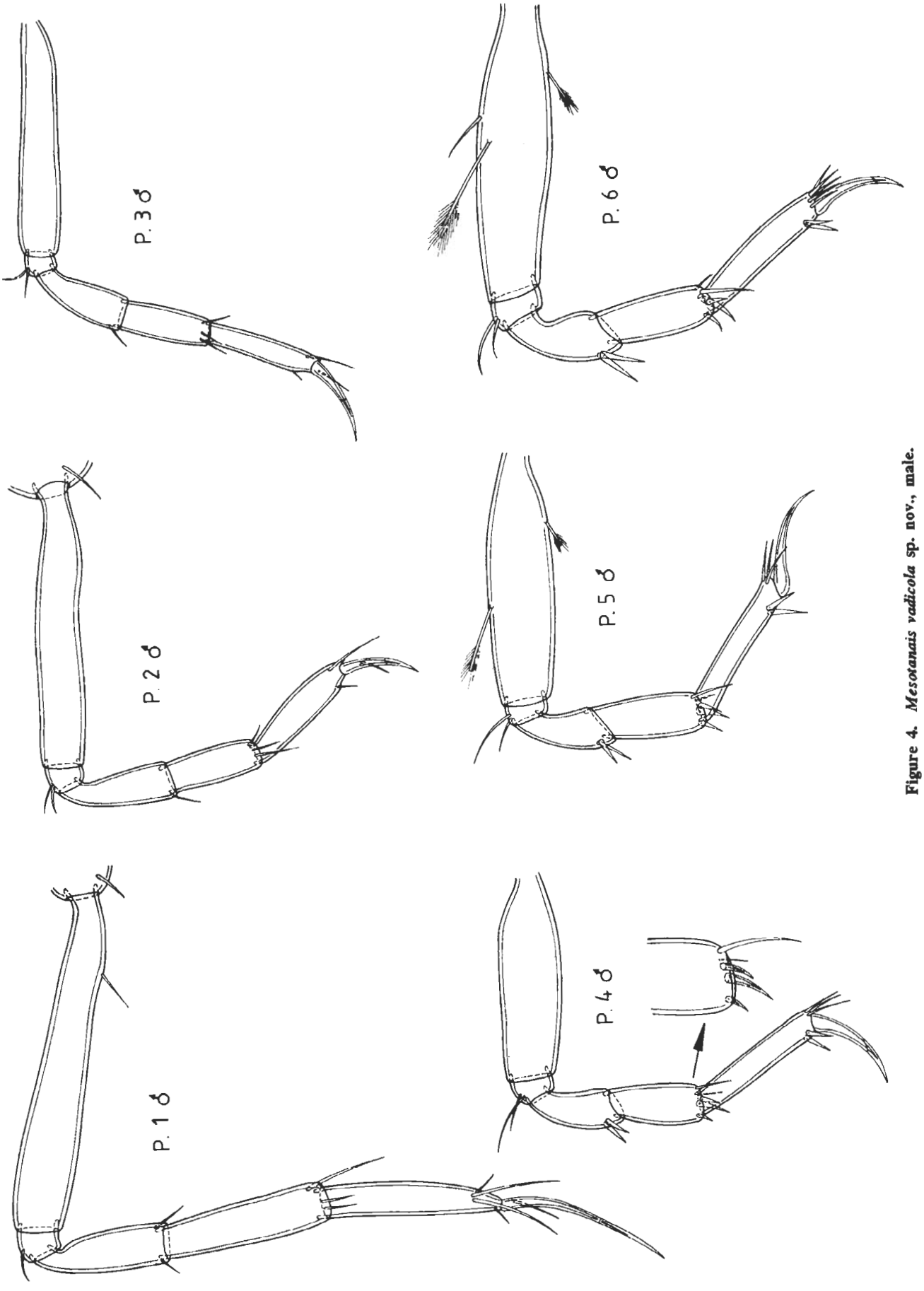

Figure 4. ***Mesotanais vadicola*** **sp. nov., male.**

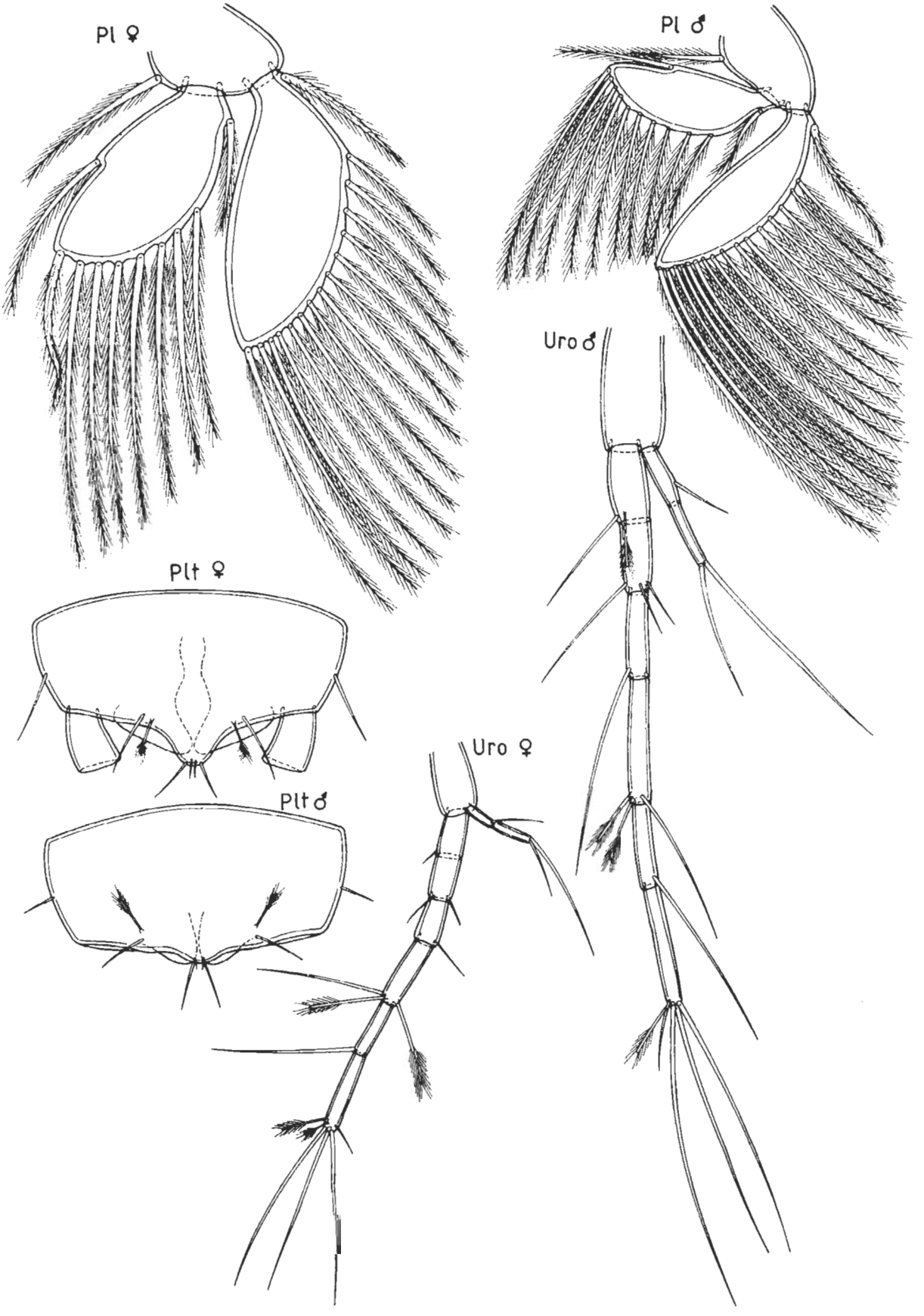

Figure 5. *Mesotanais vadicola* **sp. nov., female paratype and male.**

rated by gap from other pinnate setae.

Pleotelson (Figure 5) – Of typical shape, about twice as broad as long; caudal point prominent but typically bent sternally, with 2 tergal and 2 sternal setae; lateralborders each with one seta, caudal border with one seta and one feathered hair on each side of midline.

Uropods (Figure 5) – Biramous. Basis short, 1.7 times longer than broad, unarmed. Exopodite two-segmented; first segment about three times as long as broad, one distal seta; second similar to first, with two setae at tip. Endopodite five- or six-segmented; first and second segment fused, together about 3.1 times longer than broad, with one seta at midlength and two distal setae; third 1.7 times longer than broad, one distal seta; fourth 3.5 times longer than broad, 2 feathered hairs and one seta distally; fifth about 3.7 times longer than broad, one distal seta; sixth segment 5.2 times longer than broad, with 2 feathered hairs, one small and three long setae at tip.

Description of male

Length of adult male about 4.2 mm, about eight times longer than broad, different in body-shape to the female (Figure 1).

Cephalothorax – No eye-lobes or visual elements, elongate, 1.2 times longer than broad, broadest in posterior third, narrowed anteriorly, borders straight; with one anterior and one posterior setule.

Peraeonites – Proportions different to those of the female, more elongate. First with anterior border concave, nearly twice as broad as long. Second to fifth equal in shape, lateral borders straight; second to fourth as long as broad, fifth 1.1 times broader than long. Sixth trapezoidal, broadest posteriorly, 2.5 times broader than long.

Pleon – Well developed, all 5 pleonites of similar size, small, 4.5 times broader than long.

Antenna 1 (Figure 1) – Elongate, 7-segmented. First segment long, 5 times longer than broad, with three setae at midlength and inner border with 2 feathered hairs. Second 1.5 times longer than broad, with 2 distal setae and one distal feathered hair. Third 1.6 times longer as broad, with proximal and distal one group of 3 aesthetascs. Fourth 2.2 times longer than broad, with a distal group of four aesthetascs. Fifth twice as long as broad, with a distal group of 3 aesthetascs. Sixth 3.5 times longer than broad, with only one distal aesthetascs and 2 setae. Seventh segment tiny with one aesthetasc, 3 long and 2 short setae.

Antenna 2 (Figure 1) – Similar to that of the female, but with fourth segment more elongate, seven times longer than broad, suture near midlength with one feathered hair and on simple seta immediately adjacent to it, 4 feathered hairs and 2 setae distally.

Mouthparts – greatly reduced.

Maxilliped (Figure 2) – Represented by remnants. Basis unfused and with 2 setae near articulation of palpus; palpus represented by only 2 small bulge-like structures (the number of segments could not be determined exactly, because the Maxilliped was not removed from the cephalothorax).

Cheliped *(damaged in only male available for study)* (Figure 2) – Basis relatively short, unarmed. Merus and carpus fused, carpus extremely elongate, distal part broken off. Propodus and dactylus lacking.

Peraeopods 1-6 (Figure 4) – Similar to those of the female; only minor variations of setation are recognized; in general all pairs of legs are more slender, especially dactylus and terminal spine (which are fused in P.4- P.6) and are longer than in the female.

Pleopods (Figure 5) – As in female, but slightly smaller.

Uropods (Figure 5) – Similar to female, but more elongate, with minor differences in setation.

Pleotelson (Figure 5) – Also similar to that of the female, except caudal point which is not as prominent as in the female.

Remarks

The specimens examined show only minor variations in the setation of the appendages which are not considered of taxonomic importance. The number of segments in the uropodal endopodite vary from four (Manca-II) to seven (adult female). The correct number of segments in the first antenna could not be determined satisfactorily. In some specimens the tip appears to be represented by a minute segment while in others it seems to be separated only by a weak suture. Of interest is the terminally narrowed pars molaris and resultant reduction of the mandible's crushing area in *M. vadicola*. This condition differs from that in *M. longisetosus* and all other known leptocheliid species.

Additional characters distinguishing *M. vadicola* from *M. longisetosus* are discussed under the latter species.

Mesotanais vadicola appears to be most closely related to an eastern Atlantic species currently being described by Sieg and Bird, in press). *Mesotanais vadicola* and the new eastern Atlantic cognate are distinguished and discussed by these two authors.

Sexual dimorphism in *M. vadicola* is well developed. The male differs from the female not only in the antenna 1, mouthparts, and chelipeds, but also in body shape. The first two segments of the first antenna are fused to form a 2-segmented peduncle. The flagellum is 5-segmented with two groups of aesthetascs on the basal segment. The cephalothorax is somewhat more elongate than in the female. The remains of the maxilliped are similar to those in *Pseudoleptochelia* Lang, 1973. The chelipeds may resemble those of the *Leptochelia minuta* Dana, 1849 or *L. forresti* (Stebbing, 1896), but this can only be verified by the collection of additional specimens. Adult males may

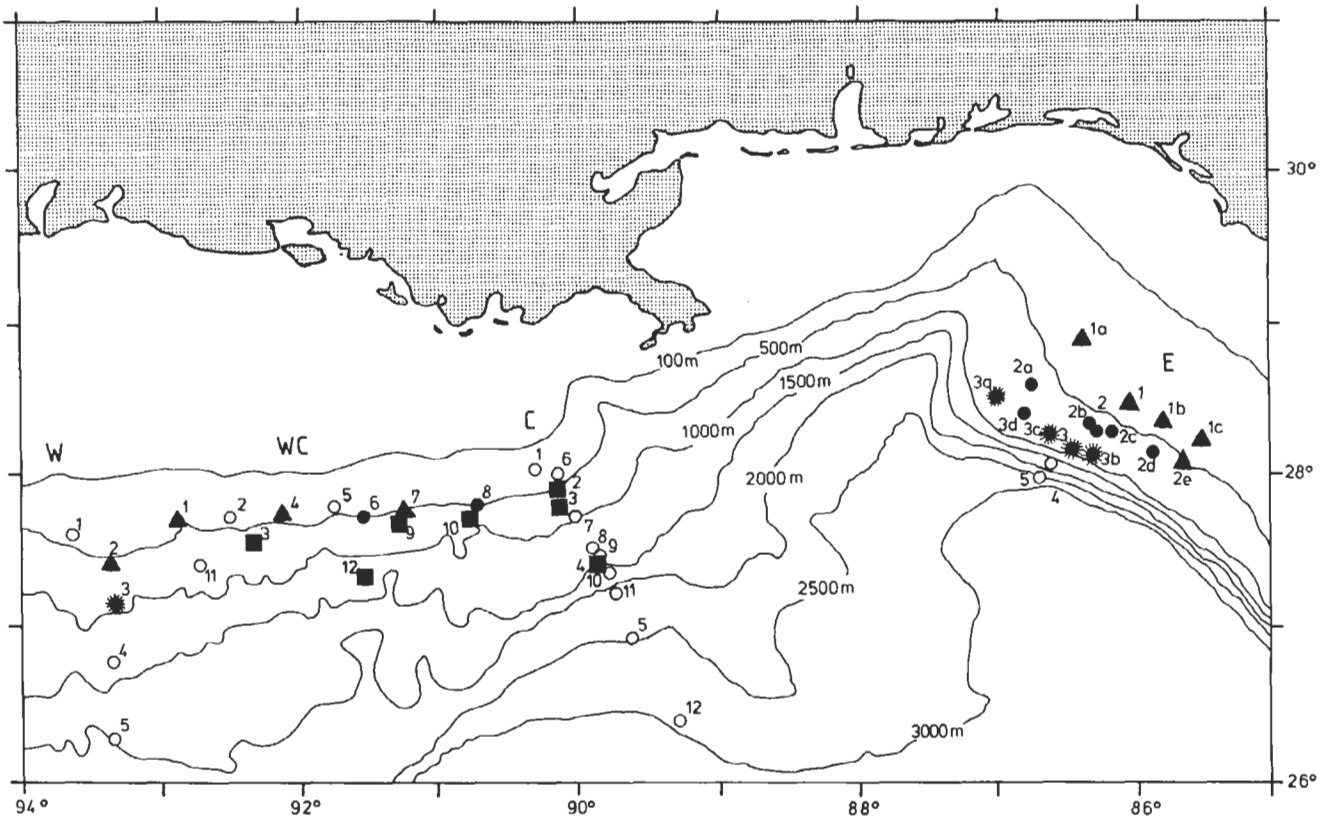

Figure 6. Station locations (NGOMCS) showing occurrence of *Mesotanais vadicola* and *M. longisetosus* on continental slope of the Northern Gulf of Mexico. Four transects are designated by: W = Western transect; WC = west central transect; C = central transect; E = eastern transect. = *M. longisetosus* only. = *M. vadicola* only. = *M. longisetosus* and *M. vadicola* at same station, but in different replicates. = *M. longisetosus* and *M. vadicola* in same replicate.

not occur before July/August because the single male from off Florida was collected in September while those specimens from the Gulf of Mexico were collected in April, May or June.

Distribution (Figure 6, 11) – *Mesotanais vadicola* may have a broad distribution along the continental shelf of the eastern United States and the Gulf of Mexico. The specimens studied were collected from depths ranging between 22 m (Atlantic, off South Carolina) and 865 m (Gulf of Mexico, off Florida). Based on the data from the Gulf of Mexico, this species appears to inhabit the outer continental shelf and upper continental slope. In the latter area *M. vadicola* may be competing with *M. longisetosus* and is apparently replaced by this species with increasing depth.

Mesotanais longisetosus sp. nov
Figures 7-10, 6, 11

Type-material

[Mineral Management Service (MMS)/Northern Gulf of Mexico Continental slope (NGOMCS) study; for station data details see Table I]: 1 female with empty marsupium, holotype, USNM 232858, Sta. C3-13, sample 197.

Paratypes – Central transect, off Louisiana, cruise I, boxcore samples; 1 female dissected, Sta. C3-23, sample 213; 1 manca-I; USNM 232867, Sta. C4-41, sample 363; cruise II, central transect, off Louisiana, 1 fragment (cephalothorax) + 1 neuter, USNM 232865, Sta. C2-11, sample 2169; 1 manca-I (damaged), USNM 232856, Sta. C2-21, sample 2176; 1 female, USNM 232862, Sta. C2-51, sample 2197; 1 female, USNM 232869, Sta. C3-11, sample 2211; 1 female + 1 fragment, USNM 232857, Sta. C3-21, sample 2218; 1 female (damaged), USNM 232861, Sta. C3-31, sample 2227; 1 female + 1 neuter, USNM 232864, Sta. C3-51; 1 neuter (damaged, USNM 232860; Sta. C3-61, sample 2248; 1 female (fragment), USNM 232859, Sta. C3-62, sample 2249; 1 manca-I, USNM 232863, Sta. C4-52, sample 2287; 1 manca-I, USNM 232866, Sta. C4-63, sample 2295.

Additional material

Same study (MMS/NGOMCS), central transect, off Louisiana, cruise III, boxcore samples; 1 manca-I,

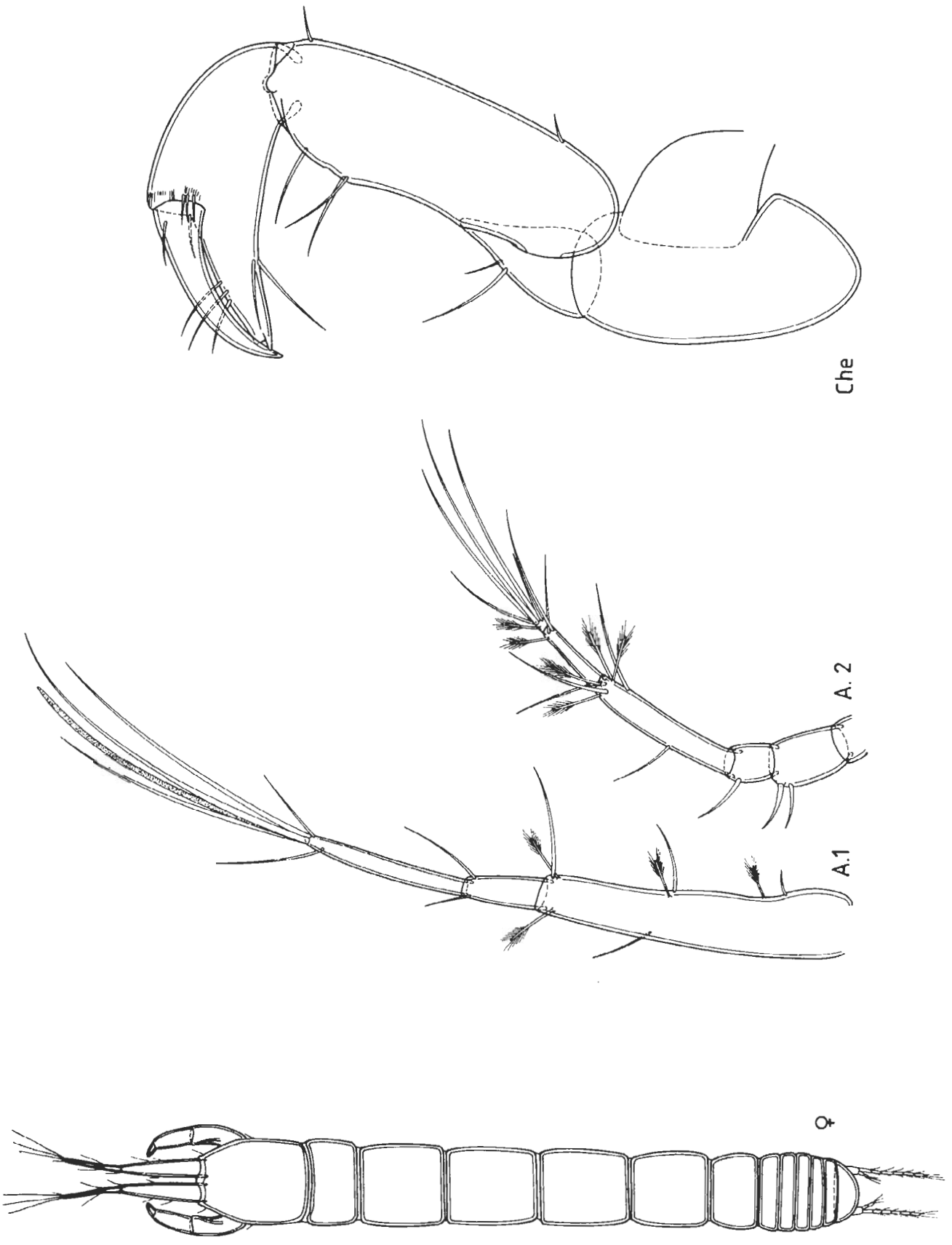

Figure 7. ***Mesotanais longisetosus*****, female paratype.**

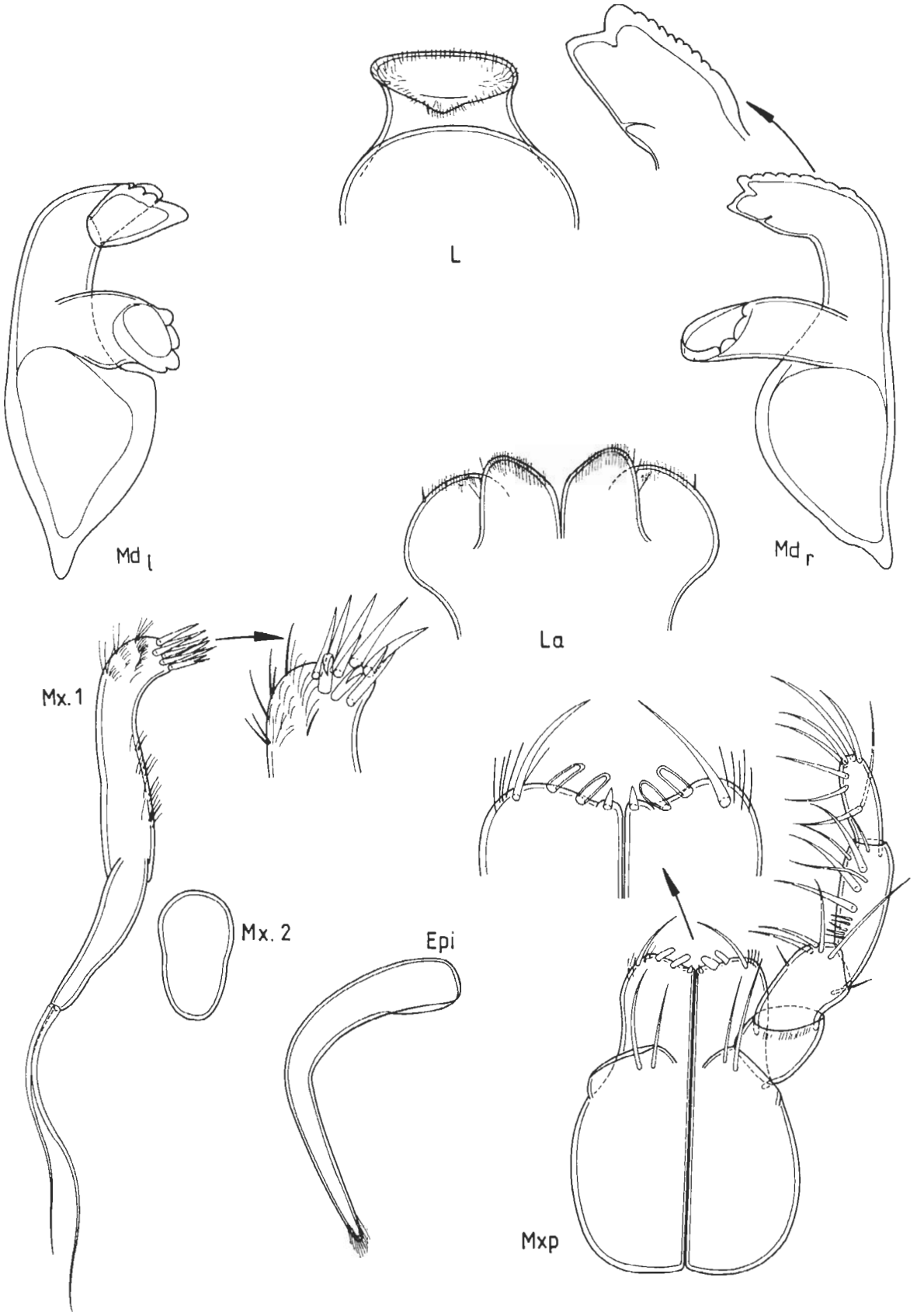

Figure 8. ***Mesotanais longisetosus*****, female paratype.**

Figure 9. ***Mesotanais longisetosus*, female paratype.**

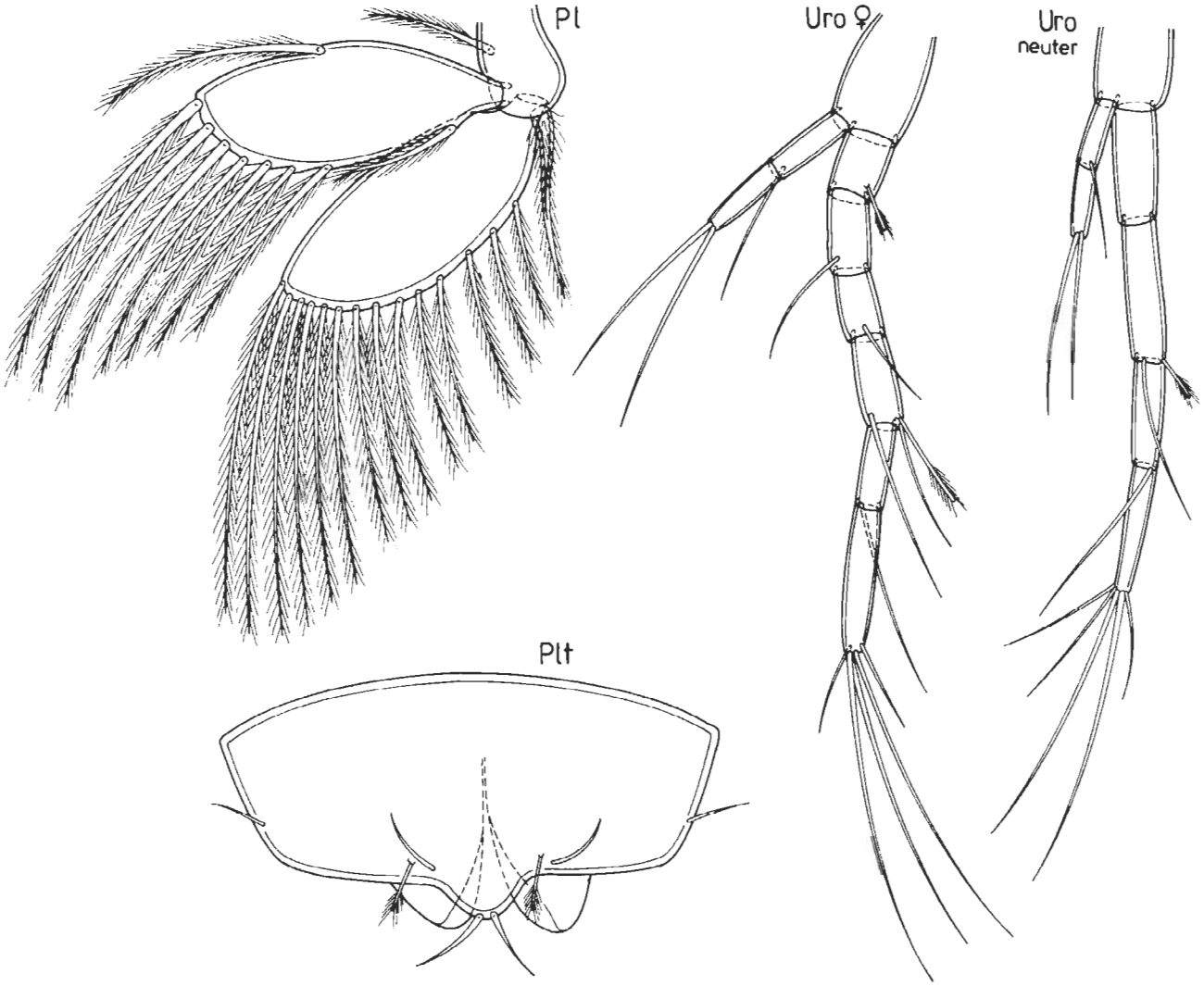

Figure 10. ***Mesotanais longisetosus*****, female paratype.**

USNM 232868, Sta. C3-4, sample 3016.

Same study, western transect, off Texas, cruise II, boxcore samples; 2 manca-I, USNM 232870, Sta. W3-21, sample 2070.

Same study, western-central transect, off Louisiana, cruise V, boxcore samples; 1 neuter (fragments) + 1 manca-I, USNM 232881, Sta. WC3-1, sample 5413; 1 neuter, USNM 232877, Sta. WC3-5, sample 5417; 1 neuter, USNM 232875, Sta. WC3-6, sample 5418; 2 females, USNM 232884, Sta. WC6-1, sample 5431; 1 neuter (dried), USNM 232876, Sta. WC8-1, samples 5443; 1 neuter, lost, Sta. WC8-2, sample 5444; 1 manca-II, USNM 232880, Sta. WC8-4, sample 5446; 1 neuter + 1 manca-I, USNM 232878, Sta. WC8-5, sample 5447; 1 neuter, USNM 232879, Sta. WC8-6, sample 5448; 1 neuter, USNM 232874, Sta. WC9-2, sample 5450; 1 neuter (dried), USNM 232871, Sta. WC9-6, sample 5454; 1 female + 1 manca-I, USNM 232872, Sta. WC10-3, sample 5457; 1 manca-II, USNM 232882, Sta. WC10-4, sample 5458, 1 manca-II, USNM 232883, Sta. WC10-5, sample 5459; 2 neuters, USNM 232873, Sta. WC12-5, sample 5471.

Same study, eastern transect, off Florida, cruise II, boxcore samples; 1 neuter + 2 manca-I, USNM 232885, Sta. E3- 31, sample 2402; 1 neuter, dissected, Sieg Coll., Sta. E3-33, sample 2404; 1 female (dried), USNM 232890, Sta. E4-42, sample 2461; cruise IV, boxcore samples; 3 neuters (dried), USNM 232911, 2 manca-I, USNM 232888, Sta. E3D-3, sample 4427; 1 neuter, USNM 232893, Sta. E3C-3, sample 4433; 1 manca-I, USNM 232899, Sta. E2A-6, sample 4444; 1 neuter, USNM 232900, Sta.E2B-2, sample 4446; 1 manca-I + 1 manca-II (both dried), USNM 232964, Sta. E2-2, sample 4452; 1 neuter (dried), USNM 232908, Sta. E2-5, sample 4455; 1 manca-I, USNM 232895, Sta. E2-6, sample 4456; 1 neuter, USNM 232897, Sta. E2C-3, sample 4459; 1 neuter, USNM 232902, Sta. E2C-6, sample 4462; 2 females, USNM

232903, 1 neuter (dried); USNM 232891, Sta. E2D-1, sample 4463; 1 neuter + 1 manca-I (both dried), USNM 232909, Sta. E2D-3, sample 4465; 1 manca-II, USNM 232986, Sta. E2D-4, sample 4466; 1 manca-I (dried), USNM 232901, Sta. E2D-5, sample 4467; 1 neuter + 1 manca-I (both dried), USNM 232907, Sta. E2D-6, sample 4468; 1 manca-I + 1 manca-II (both dried), USNM 232894, Sta. E3A-1, sample 4475; 1 neuter (dried), USNM 232910, Sta. E3A-5, sample 4479; 1 neuter, USNM 232898, Sta. E3-1, sample 4481; 1 neuter, USNM 232905, Sta. E3-3, sample 4483; 1 neuter, USNM 232892, Sta. E3B-1, sample 4487; 1 neuter, USNM 232906, Sta. E3B-2, sample 4488; neuter, USNM 232886, Sta. E3B-4, sample 4490; 1 neuter, USNM 232889, Sta. E3B-5, sample 4491; 2 neuters, USNM 232887, Sta. E3B-6, sample 4492.

Type-locality

Gulf of Mexico, off Louisiana, Sta. C3, 27°49'12"N, 090°07'12"W, 845 m.

Etymology

The name refers to the long setae on antenna 1 and antenna 2 (Latin: *longus* = long and *setosus* = with setae).

Description of female (paratype)

Length of adult female reaching about 3.5 mm, more elongate than *M. vadicola*, 8.2 times longer than broad (Figure 7).

Cephalothorax – Elongate, 1.3 times longer than broad, posterolateral borders straight, not curved, anterior part narrowed, borders also straight, rostrum tiny, no eye-lobes or visual elements; one setule on each side near anterior corners and another at midlength.

Peraeonites – Lateral margins of peraeonites 1–4 nearly straight, those of peraeonites 5–6 only convex. First with anterior margin concave, nearly 1.9 times broader than long. Second as long as broad, third and fourth about 1.15 times longer than broad. Fifth as long as broad. Sixth 1.6 times broader than long, broadest posteriorly.

Pleon – All 5 pleonites of similar size, small, about 5 times broader than long.

Antenna 1 (Figure 7) – Slender, 3-segmented. First segment 5.2 times longer than broad; inner border each with one feathered hair and one seta in the proximal third, at midlength, and distally; outer border with one seta at midlength and one distal feathered hair. Second segment 2.4 times longer than broad, with two distal setae. Third segment elongate, 8.5 times longer than broad, one subdistal seta, one small seta as well as 3 long setae and one aesthetasc at tip (long setae and aesthetasc attached to small socle resembling minute fourth joint).

Antenna 2 (Figure 7) – Six-segmented. First segment small hemispherical, partly fused with cephalothorax, and unarmed. Second about 1.3 times longer than broad, outer distal border, with one strong and one normal seta. Third segment small, as long as broad, outer border with one distal seta. Fourth elongate, 6 times longer than broad, one seta at midlength, distally with a circle of 4 feathered hairs and three setae. Fifth segment 4.5 times longer than broad, distally with 1 feathered hair and 2 setae. Sixth segment small, conical, with one feathered hair, 2 short, and 3 long setae.

Labrum (Figure 8) – Hood-shaped, tip covered with fine setules.

Mandibles (Figure 8) – Well developed and of typical leptocheliid shape. Pars molaris of typical shape, crushing area broad, wall indented 3 to 4 times. Right mandible with slightly crenulate pars incisiva, lacinia mobilis fused, represented only by pointed process. Pars incisiva of left mandible with 1 large and 2 small teeth, lacinia mobilis well developed, with one large and 3 small teeth.

Labium (Figure 8) – Consisting of 2 lobes; inner lobe small, tip covered with fine setules; outer lobe well developed, covered with fine setules, distal edge with a tiny spine-like structure.

Maxilla 1 (Figure 8) – Endite bearing circle of 8 spines, 1 bifid and with 1 additional spine at center; spines accompanied by several groups of small setae; proximal region also with several groups of setules. One-segmented palp as long as endite, with 2 terminal setae.

Maxilla 2 (Figure 8) – Of typical shape, pearshaped, lacking setae.

Maxilliped (Figure 8) – Well developed, without coxae. Basis unfused medially, with 2 setae near articulation of palpus; inner lobes (endites) slightly smaller than usual, unfused, each distal margin with 1 small and 2 large translucent spines close to midline. Palpus 4-segmented; first segment triangular, inner border shorter than outer, without setae; second segment with inner border longer than outer, inner border distal with 1 small and 4 longer setae, outer border with 1 distal seta; third segment elongate, about 2.5 times longer than broad, proximal part of inner border with 5 setules in a row, upper half with row of 3 strong seta flanked by 3 small setae; fourth segment 2.5 times longer than broad, outer border with 1 and inner border with 7 setae.

Epignath (Figure 8) – Of typical shape; elongate, tip rounded and covered with fine setules.

Cheliped (Figure 7) – Well developed, of typical shape. Side-piece of normal size, articulating with basis behind a distal conjunction. Basis elongate, twice as long as broad, no setae. Merus small, triangular, with one long and one short midsternal seta. Carpus elon-

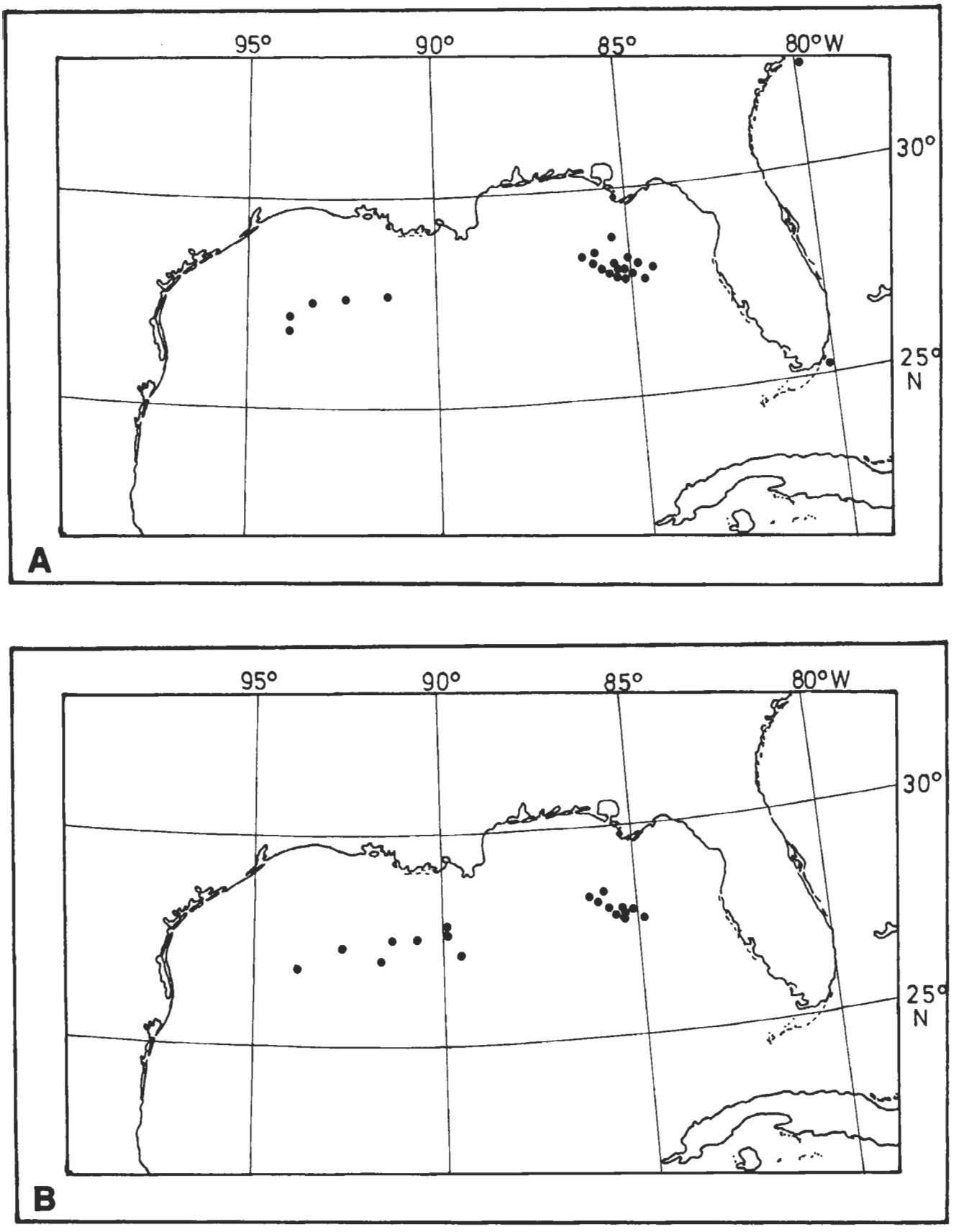

Figure 11. Distribution of the *Mesotanais* species: (A) *M. vadicola*, (B) *M. longisetosus*.

gate, 2.9 times longer than broad, tergal border with one small proximal and one small distal seta, distal third of sternal border with 3 setae. Propodus with fixed finger about 2.6 times longer than broad, sternal border of fixed finger with 2 setae and tergal border with three, tip not markedly sclerotized, "comb" consisting of three small setae and several groups of setules, caudally with 1 additional small seta near articulation of dactylus. Dactylus curved, as long as fixed finger, with 1 proximal seta.

Peraeopod 1 (Figure 9) – Slender, distinctly longer than P.2 and P.3. Coxa not fused with peraeonite, bearing a rudimentary oostegite and one seta. Basis bent sternally, 5.6 times longer than broad, proximal third of sternal border with one seta and one feathered hair. Ischium small, annular, one tergal seta. Merus nearly twice as long as broad, tergal border with one distal seta. Carpus 1.9 times longer than broad, distally with circle of 4 small setae and one long sternal seta. Propodus 4.2 times longer than broad, tergal border with one seta in distal third; sternal border with two long setae on a socle in distal third. Dactylus and terminal spine unfused, together about 1.8 times longer than propodus, dactylus with one proximal seta.

Peraeopod 2 (Figure 9) – Similar to P.1 but smaller. Coxa not fused with the peraeonite, bearing a rudimentary oostegite and one seta. Basis 5.4 times longer than broad, proximal third of sternal border with one seta and one feathered hair. Ischium annular, one tergal seta. Merus twice as long as broad, tergal border with one seta. Carpus 2.2 times longer than broad; tergal border with one caudal spine and two rostral setae; sternal border with one distal seta. Propodus 3.6 times longer the broad; tergal border with one subdistal spine; sternal border with two setae on a small socle. Dactylus and terminal spine unfused, short, as long as propodus, dactylus with one proximal seta.

Peraeopod 3 (Figure 9) – Similar to P.2, but basis with two feathered hairs, and propodus only with one long seta on socle in distal third.

Peraeopod 4 (Figure 9) – Stout. Coxa fused with peraeonite, bearing a rudimentary oostegite, no setae. Basis thickened, 2.2 times longer than broad, no setae. Ischium small, annular, two tergal setae. Merus bent sternally, tergal border distal with 1 caudal and 1 rostral spine. Carpus 1.7 times longer than broad, distal border with 1 rostral and 2 caudal spines. Propodus 2.9 times longer than broad; tergal border distally with one caudal and one rostral spine; sternal border with 1 caudal seta, and rostral border with 1 seta and 1 ciliated spine. Dactylus and terminal spine fused, forming a claw, which is shorter than propodus.

Peraeopod 5 (Figure 9) – Nearly identical to P.4.

Peraeopod 6 (Figure 9) – Similar to P.4 and P.5, except propodus bearing 3 setae on sternal border.

Pleopods (Figure 10) – All five pairs of pleopods similar. Basis small, as long as broad, sternal border with one pinnate seta. Exopodite one-segmented, outer border covered with pinnate setae, close to articulation with basis 1 strong, pilose seta separated by a gap from the pinnate setae. Endopodite one-segmented, inner border with 1 pinnate seta at midlength; outer border with 1 proximal seta separated by a gap from the other pinnate setae.

Pleotelson (Figure 10) – Of typical leptocheliid shape, 2.1 times broader than long; caudal point prominent, but typically bent sternally, with 2 setae; lateral borders each with 1 seta, caudal border with 1 seta and 1 feathered hair on each side of midline.

Uropods (Figure 10) – Biramous. Basis short, 1.5 times longer than broad, unarmed. Exopodite 2-segmented; first segment about three times as long as broad, 1 distal seta; second similar to first, with 2 setae at tip. Endopodite 6-segmented, first segment 1.5 times longer than broad, with 1 feathered hair; second nearly twice as long as broad, with 1 distal seta; third 1.5 times longer than broad, with 1 seta; fourth segment twice as long as broad, with distal 2 setae and 1 feathered hair; fifth also twice times as long as broad, with 1 seta; sixth elongate, 4.6 times longer than broad, with 2 small and 3 long setae at tip.

Remarks

Mesotanais longisetosus superficially resembles members of the family Typhlotanaidae, but as discussed above, this species shares most of the characters, especially the long terminal setae on the antenna, with *Mesotanais dubius* Dollfus, 1897, which as only recently been rediscovered and is being redescribed (Sieg and Bird, in press). It differs from *M. dubius* by having an elongate distal seta on the carpus and a more styliform dactylus of the first peraeopod, and by the presence of two short, distotergal spines on the merus peraeopods 4–6.

Mesotanais longisetosus is immediately distinguished from *M. vadicola* by having a long terminal seta on antenna 1 and peraeonites 2-4 distinctly more elongate. Other characters distinguishing the two species include: (1) the third segment of antenna 1 is more elongate in *M. longisetosus*; (2) the second segment of antenna 2 on *M. longisetosus* bears two stout distal setae (Figure 7) while in the same location on *M. vadicola* there is a single spine with a setae at its base (Figure 1); (3) the distinctly different shape and dentition of the lacinia mobilis (Figures 2 & 8); (4) the pars molaris of *M. longisetosus* is well developed and typical of other leptocheliids while it is reduced in *M. vadicola* (Figures 2 & 8); (5) the outer seta on the maxillipedal endite is much larger in *M. longisetosus* (Figures 2 & 8); and (6) the presence of a ciliated distal spine on the propodus of peraeopods 4 to 6 (Figures 9) in *M. longisetosus*. Both species also differ markedly in the shape of the chelipedal carpus. The following key may be used to futher distinguish the two northwestern Atlantic species of *Mesotanais*.

KEY TO THE WESTERN ATLANTIC SPECIES OF *MESOTANAIS*

1. A.1 7-segmented . . . . . males

   A.1 3- or 4-segmented 2

2. A.1 elongate, 3-segmented, with long terminal setae; peraeonites 3 and 4 longer than broad; cheliped with carpus elongate, nearly 3-times longer than broad; pars molaris of mandibles broad; propodus of peraeopods 4 to 6 distally with one ciliated spine-like seta . . . . . *Mesotanais longisetosus* n. sp.

   A.1 somewhat less elongate, "pseudo"-4-segmented, terminal setae inserting on a socle which might be interpreted as an additional joint; peraeonites 3 and 4 as long as broad; chelipedal carpus about twice as long as broad; pars molaris of mandibles narrowed terminally, crushing area reduced; propodus of peraeopods 4 to 6 distally without ciliated spine-like seta . . . . . *Mesotanais vadicola* n. sp.

DISCUSSION

In contrast to *M. vadicola* (Figure 11), *Mesotanais longisetosus* is presently known only from the Gulf of Mexico (Figure 6). It was collected in depths ranging from 545 to 1386 m and, therefore, based on the available data, it appears to be a typical inhabitant of the mid-region of the continental slope. The data indicate that with increasing depth the shallower water species, *M. vadicola*, is replaced by *M. longisetosus*. In areas where the slope has a gentle gradient, as in the eastern transect, there is a relatively broad zone where both species are sympatric (Figure 6). Quite often both species were collected at the same station and occasionally occurred in the same replicate sample (Figure 6). To understand the factors limiting the distribution of the two species, more detailed ecological information, e.g. sediment analysis, etc. is needed. The strikingly different development of the pars molaris in each species indirectly indicates a difference in diet.

The differences between *M. longisetosus* and *M. vadicola* and their respective eastern Atlantic cognates (Sieg and Bird, in press) are very pronounced compared with those among species in other genera within the family Leptocheliidae. The discovery of additional taxa or the male stages of *M. longisetosus* and the other two species of the genus from eastern Atlantic may indicate that *M. vadicola* and its eastern Atlantic cognate belong to a distinct subgenus or genus.

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